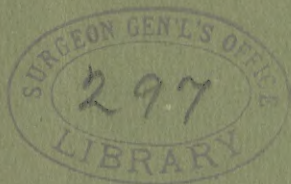


With Dr. Wainwright's compliments.

(W. A. M.)

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THE
MODERN TREATMENT
OF
WOUNDS.



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OF
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BY

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THE MODERN TREATMENT OF WOUNDS.

The text of my little sermon is taken from page eight of the *Hartford Times*, of September 25, 1886, column 1, and reads as follows:

Hubert Wheeler and wife, of this city, have been at Barkhamsted for some time. Mr. Wheeler was severely injured last Spring, by having one finger nearly torn off, while engaged as a brakeman on a railroad. Blood poisoning followed, and he is now slowly gaining. *His hand, and arm below the elbow, have been lanced twenty-four times.*

This looks like a picture from the hand of one of the old masters; and to those of us who walked the hospitals, twenty years ago, how true a picture it is, of what was then a daily sight.

How many cases, of which this is a type, would the hospital records of those days disclose. I doubt if such a history, of any kind of wound, could be found, to-day, upon the records of any well-conducted hospital, where the modern scientific antiseptic treatment of wounds has been introduced, and is properly carried out. And that such a case can occur to-day in private practice, its his-

tory finding its way into the public prints, is a fact which "must give us pause"; and which must bring this question to our minds: "Have we, as surgeons, done our duty in giving to our patients the inestimable benefits, which follow the modern antiseptic treatment of wounds?" I fear that the question must be answered in the negative. Whatever may be our particular views as to the "germ" theory; whatever may be our particular fondness for, or aversion to, the microbe — be he bacillus or micrococcus — this fact remains; that Sir Joseph Lister has given a boon to suffering humanity, which fully entitles him to be named with Ambrose Paré, Edward Jenner, or Horace Wells, as amongst the greatest of discoverers in our medical world. I do not propose to recount to you the details of the method of treatment of wounds in vogue twenty years ago; still there is one part of it, which I should like to recall to your minds. A wound — an amputation for instance — was in those days, with great pains, and with the interrupted silk suture, sewed up as tight as a drum; the operator after it was done, priding himself upon the "beautiful" appearance of the stump. Within thirty-six hours the "beautiful" appearance had, in most instances, departed, and in its place was a dark, swollen, ominous look, to relieve which, more or less — generally more — of those carefully inserted sutures were, with great discomfort to the patient, removed, in order to let out the ill-favored grumous serum and blood, which had been so carefully dammed up within the wound. The process reminds one of that King of France, spoken of in the nursery legend, who "with twenty thousand men, marched up the hill, and then —

marched back again." It is a wonder to me that some one did not a long, long time ago find out that it was a work of supererogation.

I will not dwell upon the inflammation, septicæmia, pyæmia, or erysipelas, which were very apt to follow. In fact, it was rather expected that our hospital wounds should do badly; and if they did well we thought ourselves fortunate. How different the results are now in those same hospitals. Capital operations of all kinds have lost their terrors. Hip amputations, ovariectomies, laparotomies and the like are now performed with almost a certainty of success. Formerly the chances were all the other way. For a wound to do badly after an operation nowadays, is a marked exception to the existing rule.

What has brought about this change? The surgeons of to-day are no more skillful in operating than they were then. There has been no beneficent alteration in the human economy, whereby wounds are better borne now than they were then. It is simply due to Professor Lister's discovery, viz.: that care, cleanliness, drainage, and the prevention of fermentation in wounds, would enable the surgeon to walk fearlessly where before he had hardly dared to tread; and would rob his knife of more than half its uncertain terrors. It is not my intention to write a dissertation—which might be learned or otherwise—on wounds; incised, punctured, lacerated, or contused; or to take up your time in speaking of the theories upon which the antiseptic treatment is based, or the arguments pro and con. These topics must be sufficiently familiar to you. The object of this paper is simply to lay before you, in detail, the different

steps to be taken in treating a wound by the modern antiseptic method.

The principle is the same in the treatment of all wounds, variation of detail being, of course, necessary in the different classes. And I would here commend to your favorable notice a little monograph written by Dr. Robert T. Morris of New York, and recently published by G. P. Putnam's Sons, entitled, "How we treat wounds to-day"; which, while being somewhat egotistical in its diction, is still a most admirable book, and one whose precepts we would all do well to follow. The antiseptic treatment of wounds is based upon the fact that it is necessary to keep the microbe out of them. Whether he is the cause, or simply an accompaniment in the suppuration of wounds I will not, as I said, stop to discuss. The fact remains that the day of looking and praying for "laudable pus" is passed and gone, and that if we can keep, as Artemus Ward would have said, this "pesky cuss" out of our wounds, they will do well; if we let him in, they will do badly. Now, how can we keep him out? By absolute cleanliness and disinfection; which is brought about by the proper cleansing of the parts before and during the dressing, and by keeping them clean and disinfected afterwards. Of all the so-called germicides, the corrosive chloride of mercury is at the present day considered the most efficient. It is to be used freely in solution varying from 1-1000 to 1-5000. The 1-2000 is the best for general use. Sixteen grains to 1 quart of water makes a 1-1000 solution; not exact, but near enough for all practical purposes. The 1-1000 solution is said to be an absolute destroyer of germs,

but it is too strong to be allowed to remain in wounds, and if used should be washed out with a weaker solution — 1-5000. Whether this or any other so-called germicide is a better agent for the disinfection of wounds, than pure distilled water, remains to be seen. But the bi-chloride solution is easy to obtain, does no harm at least, and should be used until something better is found to take its place.

It has been held by many, that the minute details in following out the antiseptic plan of treatment are entirely unnecessary, and almost worse than useless. It is very certain, however, that those surgeons have the best results, who follow out the details most carefully.

The spray has, in general surgery, been abolished by the majority of surgeons; irrigation having taken its place.

In order to treat a wound antiseptically the following articles are absolutely necessary:

1. An antiseptic fluid — The bi-chloride solution being the best.
2. Antiseptic drainage tubes, either bone or rubber. Strands of catgut and horse hair are also used for this purpose.
3. Antiseptic catgut, or silk worm gut, for ligatures and sutures.
4. Antiseptic gauze.
5. “ cotton.
6. “ bandages.

The following articles are not absolutely necessary, but are important and useful accessories:

1. Iodoform.

2. A large fountain syringe to be used as an irrigator.
3. A rubber sheet to be applied around the part operated upon.
4. Lister protective, — oiled silk — to put over the closed wound.

The steps to be taken in carrying out the antiseptic treatment of wounds are as follows :

We will take as an example a leg amputation.

1. The rubber sheet is to be applied to the leg, by being tied some distance above the point of amputation. It is convenient to have a hole cut in the sheet, through which the limb can be put. By this means the rest of the body will be protected, and a gutter will be formed to carry off the irrigating fluid, and blood into a receptacle beneath the table. To aid this process, it is well to elevate two legs of the table by placing a book, or block of wood under them.

2. The parts to be operated upon should be thoroughly washed with soap, and the bi-chloride solution (1-1000) (a bi-chloride soap is now made which can be used with good effect). Then the parts should be carefully shaved, and again washed off with the antiseptic solution. By this means, dirt, hair, dried epithelium, and all interloping microbes are gotten rid of. An Esmarch's bandage, or tourniquet, having been applied, the amputation is performed, an assistant using the irrigator freely.

3. After all bleeding points have been secured by catgut ligature, (and in the case of the larger arteries, three knots should be tied, and the ends not cut too short, in order to prevent slipping.) the wound is to be thoroughly washed out with the bi-chloride so-

lution (1-2000). The longer time taken in this part of the proceedings the better.

4. One or more bone or rubber drainage tubes are inserted, care being taken that drainage of the deepest parts of the wound is provided for; and it is well to insert an ordinary safety pin through the exposed end of the tube, so that it may be kept in place. The wound is then to be closed with a catgut suture, using the uninterrupted glover's stitch.

5. The line of suture is then to be freely dusted with iodoform, and a strip of the Lister protective put over it, in order to prevent the other dressings from sticking to the wound. Several layers of antiseptic gauze, which has been rung out in the bi-chloride solution, are then to be loosely placed over the wound. A thick layer of antiseptic cotton is then applied, the whole being kept in place by a bandage, which has also been rendered antiseptic by immersion in the solution. Bandages made out of cheese cloth are the best, as they can be easily wet, are soft and light, and can be very evenly applied. The dressing is then complete. The wound, where it is possible, should be slightly elevated, and kept free from disturbance. If bone drainage tubes are used, this dressing should not be removed for a week or ten days. It will then be found that the tubes have been absorbed, the wound healed, and nothing remains but the safety pin and a few dried shreds of the catgut suture, which can be readily brushed away. If the rubber drainage tube is used, the dressing must be removed in three or four days, the tube taken out, and a second dressing applied, with all the an-

tiseptic precautions used in applying the first one. This second dressing may remain undisturbed, until sufficient time has elapsed for the complete healing of the wound. Of course every wound will not do well even under this treatment, and the thermometer gives us early indication when any trouble is brewing. If after the second day, there should be a rise in temperature to 102° or more, take off the dressing and find out what the trouble is. The after treatment in such a case must depend upon circumstances. It may be best to treat the wound after the "open method," instead of again attempting to use an absolutely antiseptic dressing. As I have remarked before, there must, of course, be many variations in the minor details: as for instance, in the matter of sutures: sometimes it is best to use silver or iron wire. Such things must be left to the judgment of the surgeon. Furthermore, there are many wounds where the antiseptic plan cannot be entirely carried out, and others, as in the face for instance, which do not require it; but *antiseptic precautions* can, and should, be carried out in every case. And these can be embraced under the following rules, which should be absolute:

1. The wound must be made aseptic before any dressing is applied, and
2. Nothing should come in contact with the wound, which has not been rendered antiseptic by being immersed in a disinfecting solution.

Thus the surgeon's hands, (particularly the nails) and those of his assistant's, should be carefully and thoroughly washed in soap and

water, and rinsed off in the bi-chloride solution, before undertaking an operation or dressing an important wound.

Since writing the above I have read the following paragraph in the New York *Medical Journal*:

THE IMPORTANCE OF CLEANLINESS. — In the annual discourse before the Massachusetts Medical Society at its last annual meeting, Dr. R. M. Hodges says: "Dirty finger-nails may communicate a fatal poison, through the trivial operations of surgery which every physician undertakes to perform, or inaugurate the 'private pestilence,' which still sometimes follows in the track of the obstetrician."

The knives and other instruments, sponges, drainage tubes, ligatures, sutures, pins, in fact every thing that is to come in contact with the wound should first be immersed in the solution. Towels wrung out in the solution, should be placed about the parts to be operated upon, so that no bacteria polluted article can come near the wound. The custom of allowing all the by-standers to have "a finger in the pie," so to speak, which is so commonly seen at operations, is a most reprehensible one. Keep all unnecessary fingers out of your wound. An instrument once used, should not be used again, without being dipped in the antiseptic solution. The surgeon's fingers should be subjected to the same treatment, if during the operation they come in contact with any disinfected article.

I would not have you infer, from my not having as yet mentioned carbolic acid, that I do not value it as an antiseptic. It is of great value, but I do not believe that it is as good an agent for antiseptic use about wounds, as the bi-chloride of mercury. Ligatures, sut-

ures, drainage tubes, sponges, etc., should be kept in a solution of the acid; and during an operation or the dressing of a wound, all instruments should be kept in a solution of it. A 1-30 solution is strong enough for these purposes. For use about wounds, if one prefers the acid, a 1-30 or 1-50 solution is plenty strong enough.

For the minute details of the method, as applied to the different classes of wounds, and particularly to the treatment of compound fractures, I refer you to Dr. Morris' little book, alluded to above.

In no class of cases are the benefits of this method of treatment more plainly seen than in the lacerated or contused wounds of fingers. You all know from experience, what tedious, suppurating, and bad smelling affairs such cases are, under the old plan of treatment; and how often, as in the case of the unfortunate man mentioned in my text, disastrous results follow such injuries, which sometimes may be very slight at the start. Under the modern method of treatment, even a badly crushed finger is comparatively a light affair, and will heal without the ordinary signs of inflammation, in a way that will surprise you the first time you try it. If Mr. Hubert Wheeler had been treated by the modern antiseptic method, I am sure that his record would not have stood at "*blood poisoning*," and "*lanced twenty-four times*."

Now, many of you may smile at a good deal that I have written; and say *cui bono*; but, in attempting to carry out the modern method of treating wounds, it should be "*Aut Cæsar aut Nullus*," if we expect to obtain results, which are within our easy reach, and which were never dreamed of in the philosophy of our fathers.

